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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,421

05/05/2006

Ki Ju Kang

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1653

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EXAMINER

KENNY, DANIEL J

ART UNIT

PAPER NUMBER

3633

MAIL DATE

DELIVERY MODE

03/02/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,421	<b>Applicant(s)</b> KANG ET AL.	
	<b>Examiner</b> DANIEL KENNY	<b>Art Unit</b> 3633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-13, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-5, and 9-13 is/are rejected.
- 7) ☒ Claim(s) 7 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission has been entered.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 1-6, and 9-13 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Snelson (6,739,937) in view of Barlow (4,271,628).**

Snelson discloses a structure (Fig. 4 below) comprising:

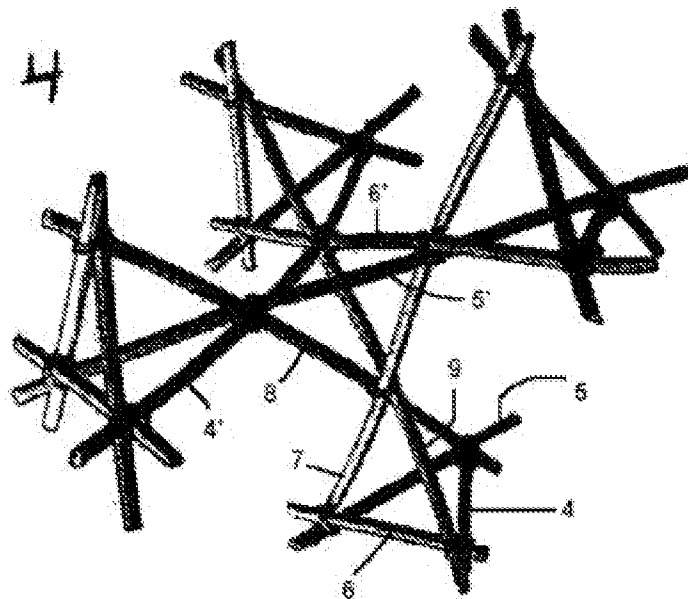
*Claim 1* - a) a first tetrahedron member formed of a first to sixth wires, the first tetrahedron member being constructed in such a manner that the first wire (4), the second wire (5), and the third wire (6) are intercrossed in a plane to form a triangle, the fourth wire (7) is intercrossed with the intersection point of the second wire and the third wire, the fifth wire (8) is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third

Art Unit: 3633

wire and the first wire, the fourth wire, the fifth wire, and the sixth wire (9) being intercrossed with one another at a single reference intersection point; and

b) a second tetrahedron member contacted with the first tetrahedron member at the reference intersection point and having a similar shape to the first tetrahedron member, the second tetrahedron member being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of wires (4', 5', 6') is intercrossed with two wires selected from the extended fourth, fifth and sixth wires, the group of wires being in parallel with the first wire, the second wire, and the third wire respectively; and

and the unit cell is repeated in a three-dimensional pattern, thereby forming a wire (or rod)-woven truss-type structure.



Annotated Fig. 4 (6,739,937)

Barlow discloses that it is old in the art to form regular tetrahedron structures (Fig. 20), wherein the forming elements are intercrossed with each other at 60 degrees or 120 degrees, and the unit cell is repeated in a three-dimensional pattern, thereby forming a truss-type structure.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include the regular tetrahedron structures taught by Barlow to form “complex geometrical structures” (col. 1, line 26), which helps achieve the Snelson goal of forming “more challenging” three dimensional space frame objects.

Finally, the structure of Snelson in view of Barlow (a rod-woven structure unit cell repeated in a three-dimensional pattern, thereby forming a truss-type structure) has the claimed wires intercrossed with each other at 60 degrees or 120 degrees, each of the wires and being curved in a first direction at a first intersection with a first group of two other wires and being curved in a second direction, which is opposite to the first direction, at a second intersection with a second group of two other wires, the second intersection being adjacent to the first intersection, the unit cell repeated to form the plurality of unit cells in a three-dimensional pattern, as for example, “preferably all the rod members are formed with a zig-zag configuration to avoid bending the rods at vertex points”. The zig-zag configuration forming a curve at the vertex points.

Claim 2 - Among the six groups of orientational wires, three groups of orientational wires forming a vertex of the first or second regular tetrahedron member are intercrossed clockwise or counterclockwise when seen from the front of the vertex.

Claims 3 and 4 – The Barlow first and second regular tetrahedron members have a similarity ratio of 1:1. (Fig. 6)

Claim 5 – The wires are any one selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Claim 6 - The intersection point of the wires is bonded by any one selected from the group consisting of a liquid- or spray-form adhesive, brazing, soldering, and welding.

Claim 9-13 are an obvious method of using the device of the above claims.

### ***Allowable Subject Matter***

Claims 8 and 16 are allowed.

Claims 7 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments have been fully considered but they are not persuasive.

Regarding Applicant's argument that Snelson teaches away from a tetrahedral matrix as claimed because Snelson teaches building unique space frames, Examiner

Art Unit: 3633

notes that the claimed regular tetrahedral are just one of many unique space frames capable of being built.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL KENNY whose telephone number is (571)272-9951. The examiner can normally be reached on Mon-Fri. 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on (571) 272-6754. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. K./  
Examiner, Art Unit 3633

/Jeanette E Chapman/  
Primary Examiner, Art Unit 3633